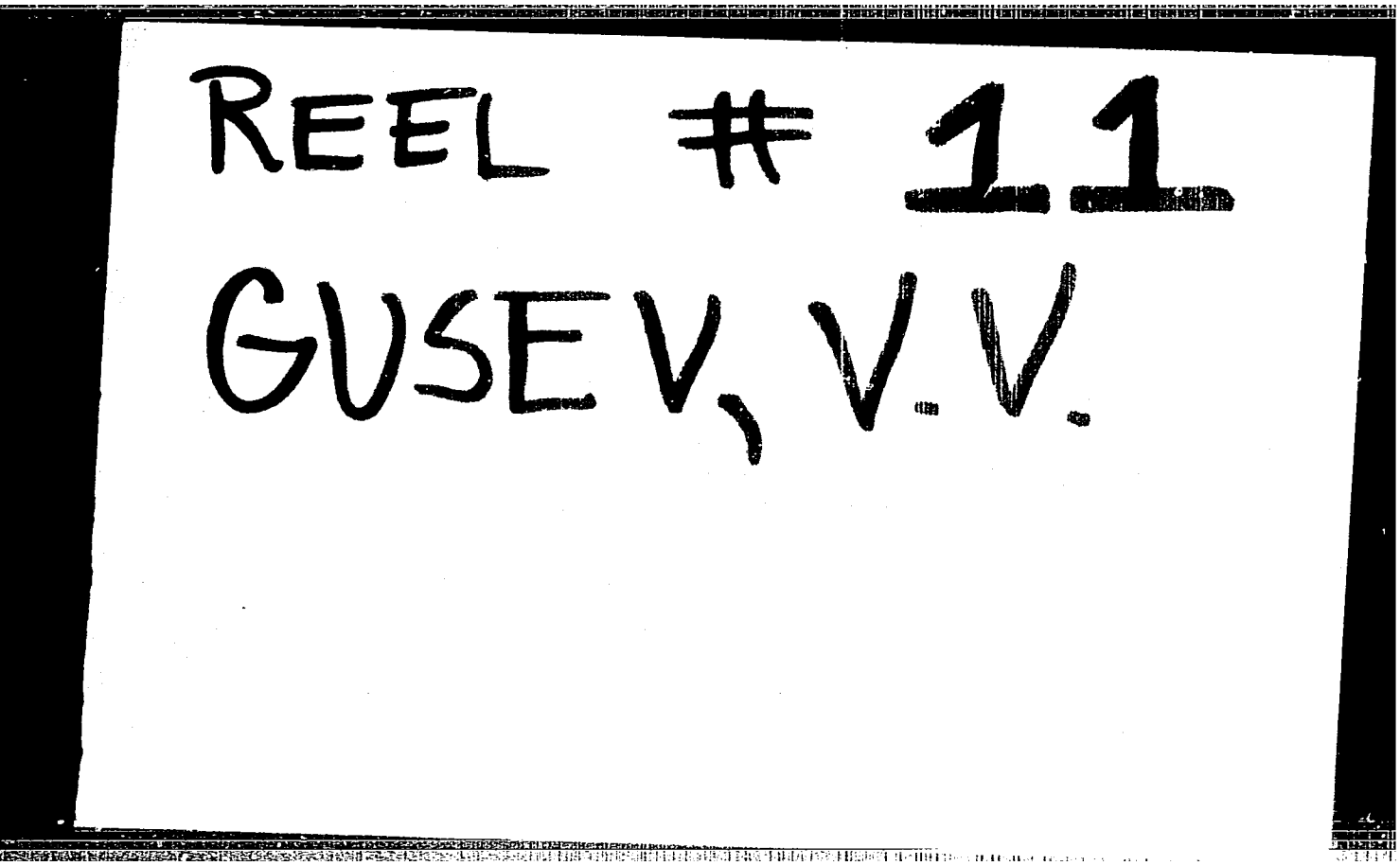

USSR

GUSEV, V. V., MAR'YANOVICH, T. P., SAKHNYUK, M. A.

"Program Modeling of Complex Systems"

Upravlyayushchiye Sistemy i Mashiny [Control Systems and Machines], 1972, No 1, pp 19-26 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V739, by the authors).

Translation: The essence and certain methodological problems of investigation of complex systems on computers by the use of modeling languages and programming systems based on them are discussed in readable form.

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UDC: 8.74

USSR

GUSEV, V. V., MAR'YANOVICH. T. P., SAKHNYUK, M. A.

"The NEDIS Modeling System"

Teoriya Yazykov i Metody Postroyeniya Sistem Programmir. [The Theory of Languages and Methods of Construction of Programming Systems--Collection of Works], Kiev, Alushta, 1972, pp 397-405 (Translated from Referativnyy Zhurnal Kibernetika, No 11, 1972, Abstract No 11V541, by V. Mikheyev)

Translation: A programming system based on the NEDIS modeling language for the BESM-6 computer is discussed. NEDIS is a high level algorithmic language, designed for modeling of systems, combining discrete and continuous processes. Discrete-continuous systems are systems in which the values of parameters change continually in the time intervals between discrete events, according to time dependence fixed as a system of differential equations. The structure of the system of differential equations, like the structure of the entire system, is formed as a result of the discrete events occurring in the system. An example of description of a discrete-continuous system in NEDIS is presented.

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1/2 036 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SPECTRA OF SLOW NEUTRONS FROM A CONTINUOUS TANGENTIAL REACTOR

CHANNEL -U-

AUTHOR-(05)-GOSHCHITSKIY, B.N., GUSEV, V.V., KONSTANTINOV, L.V., KOROTOVSKIKH, P.M., SIDOROV, S.K.

COUNTRY OF INFO--USSR

SOURCE--AT. ENERG. 1970, 28(5), 425-6

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--SPECTRUM, SLOW NEUTRON, GRAPHITE, PLEXIGLASS, MAXWELL DISTRIBUTION, NEUTRON FLUX, NUCLEAR REACTOR/(U)IVV2 REACTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3008/0584 STEP NO--UR/0089/70/028/005/0425/0426

CIRC ACCESSION NO--AP0137669

UNCLASSIFIED

2/2 036 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0137669

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECTIVENESS OF GRAPHITE AND PLEXIGLAS AS SCATTERERS FOR THE EXTN. OF SLOW N FROM A CONTINUOUS TANGENTIAL REACTOR CHANNEL WAS STUDIED BY OBTAINING ENERGY SPECTRA OF SLOW N FROM THE TANGENTIAL CHANNEL GEK-5 OF THE REACTOR IVV-2. THE N FLUX WAS MEASURED AS A FUNCTION OF THE N WAVELENGTH, THE LENGTH OF THE SCATTERER, AND THE ANGLE OF THE SCATTERER WITH RESPECT TO THE CHANNEL AXIS. THE SPECTRA ARE COMPARED WITH MAXWELL DISTRIBUTION CALCD. FOR T EQUALS 290DEGREESK. IN ALL CASES THE SPECTRA ARE DESCRIBED BY THE SAME ENERGY DISTRIBUTION. THE OBSD. WEAK ABSORPTION OF N IN THE PLEXIGLAS SCATTERER DID NOT AFFECT THE CHARACTER OF THE SPECTRUM, BUT SLIGHTLY DECREASES THE VALUE OF THE N FLUX FOR EACH ENERGY.

UNCLASSIFIED

EQUIPMENT
Aeronautical

USSR UDC 629.7.036.3:531.7

GUSEV, Yu. M., IVANOV, A. I., SHAYMARDANOV, F. A.

"Synchronized Device for Converting the Rotating Speed of a Gas Turbine to Pulse-width Modulated Signals"

Tr. Ufim. Aviats. In-ta. [Works of Ufim Aviation Institute], 1971, No 18, pp 3-14. (Translated from Referativnyy Zhurnal Aviatsionnye i Raketnyye Dvigateli, No 1, 1972, Abstract No 1.34.75 from the resume).

Translation: Recently, electrical gas turbine speed measuring and regulating devices have become common. In these devices, the signal from the turbine speed sensor is sent to the control system as a periodic voltage curve of some shape with a frequency proportional to the rotating speed of the engine. The necessity frequently arises of converting the frequency of the rotating speed sensor signal to a proportional dc voltage. The best device for this purpose is a frequency to voltage converter with double conversion from frequency to duty cycle to voltage, one stage of which consists of formation of pulse-width modulated signals with a duty factor proportional to the frequency

$$S=\tau/T,$$

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USSR

GUSEV, Yu. M., et al., Tr. Ufim. Aviats. In-ta, 1971, No 13, pp 3-14

where τ is the time interval of the pulse-width modulated signal; T is the period of the frequency being converted. This work presents a comparative analysis of several possible means of formation of the duty factor of the signal. 4 figs 7 biblio refs.

2/2

USSR UDC 624.132.6:627.82.012.45(282.251.2)

ALEKSANDROVSKAYA, E. K., VASILEVSKAYA, L. A., GUSEV, Yu. N., URAKHCHIN, V. P., Engineers

"Results of Natural-scale Observations of Shifting of the Krasnoyarsk Dam and Its Rock Base"

Moscow, Gidrotekhnicheskoye Stroitel'stvo, No 1, Jan. 1973, pp 17-23.

Abstract: Materials are presented from observations of the settling, horizontal shifting and tilting of the Krasnoyarsk Dam. The materials are analyzed. The measured displacements are used to determine the modulus of elasticity of the dam as a unit structure and the modulus of deformation of the rock base. The measured and calculated horizontal displacements are compared. Analysis and summarization of the materials of observation are used to produce a prediction concerning displacement of the top of the dam during its useful life. The extreme values of displacement can be looked upon in the first approximation as a criterion for safe operation of the structure, and the operating personnel can use them for further testing of the condition of the dam.

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USSR

UDC 621.311.21.001.42

ALEKSANDROVSKAYA, E. K., GUSEV, YU. N.

"Natural Studies of Stresses and Strains in the Water Conduit, the Spiral Chamber and the Ship Elevator of the Krasnoyarsk Hydroengineering Complex"

V sb. Nauchn. issled.po gidrotekhn. v. 1969 g. T. 1 (Scientific Research in Hydroengineering in 1969. Vol 1 -- collection of works), Leningrad, Energiya Press, 1970, pp 135-136 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 D132)

Translation: The purpose of this experiment was to determine the actual stresses and strains in the metal and concrete of the indicated structures and to compare the measured values with the calculated ones to check correspondence of the calculation techniques used and the prerequisites for actual operation of the structural elements. The experimental results demonstrated the following: the measured stresses are significantly lower than the calculated stresses (the metal and reinforced concrete shells were each calculated for the total hydrostatic pressure individually). Especially large safety margins were obtained in the sections of conduits which pass through the massive concrete. The stresses increase only at points where cracks have obviously formed in the prefabricated concrete shell; the reinforcing of the spiral chamber located above the

1/1

ALEKSANDRAOVSKAYA, E. K., et al., V sb Nuachn. issled. pogidrotekhn. v 1969 g. T. 1, Leningrad, Energiya Press, 1970, pp 135-136

elastic insert receives no hydrostatic pressure.

2/2

Acc. Nr: AP0047190 Ref. Code: UR0511

PRIMARY SOURCE: Stomatologiya, 1970, Vol 49, Nr 1, pp 86-87

B. Ya. Corovoy, G. A. Milovanov, Yu. P. Gusev, E. P. Gusev — THE EMPLOYMENT OF DENTOXIDE FOR REINFORCEMENT OF NONREMOVABLE PROSTHESES

Summary. For the rein forcement of nonremovable prostheses the authors employed a preparation from the group of self-setting epoxy resins — dentoxide — endowed with good adhesion, absence of toxicity for the dental pulp and not disolving in the oral cavity. Dentoxide was used in accordance with the instruction. Observations over 124 patients showed good fixation of bridge prostheses.

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REEL/FRAME

19790689

USSR UDC 542.952.1+661.718.1

MURETDINOVA, O. N., ARBUZOV, B. A., GUSEVA, F. F., Institute of Organic and Physical Chemistry imeni A. Ye. Arbuzov, Academy of Sciences USSR

"The Effect of Salt Cation and the Solvent on the Isomerization of the Thiirane Cycle Into the Thiethane Cycle in the Reaction of Thioepichlorohydrine With O,O-Diethyldithiophosphates of Alkali Metals"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No 8, Aug 70, pp 1661-1662

Abstract: Reactions of thioepichlorohydrine with potassium, sodium, and ammonium O,O-diethyldithiophosphates were carried out in propanol, ethanol, and in water by heating the reagents for 2 hours at 60-70°C. It was found that the salt cation shows no effect on that reaction course. Depending on the solvent, however, the above reaction may yield either thioepoxyderivatives -- when ethanol or propanol are used -- or a mixture of isomeric compounds with the thioepoxy and thioethane structures, the later forming predominantly when aqueous alcohol or water are used as solvents.
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UDC 548.52:535.4

USSR

GINZBURG, V. M., GUSEVA, I. N., KRAMARENKO, V. A., SEMENOV, E. G., SONIN, A. S., and STEPANOV, B. M.

"The Use of Holographic Interferometry to Observe the State of a Solution During the Growth of Single Crystals"

Moscow, Kristallografiya, Vol 17, No 5, Sep-Oct 72, pp 1012-1014

Abstract: The article shows that holographic interferometry can be used to study the state of a solution during the growth of KH_2PO_4 single crystals. The method used is that of bringing the object into coincidence with its virtual image, in which the recorded wave front interferes with the real wave front. The method makes it possible to obtain real-time holographic interferograms for any stage of the growth process and to take photographs and motion pictures of them. The use of diffused illumination of the crystallizer makes it possible to record the interferograms from various aspects, which permits an analysis of the volumetric distribution of the refractive index of the solution and from the known relation between variations in the

USSR

GINZBURG, V. M., et al., Kristallografiya, Vol 17, No 5, Sep-Oct 72, pp 1012-1014

refractive index and the concentration, diffusion coefficient, etc. an analysis of the spatial distribution of the principal parameters of the solution.

The authors thank D. YE. TEMKIN, A. A. CHERNOV, N. N. SHEFTAL', and A. A. SHTERNBERG for discussing the results, and V. N. KIRILLOVA for her help in the experiment.

2/2

UDC 548.4

USSR

GINZBURG, V. M., GUSEVA, I. N., SEMENOV, E. G., SONIN, A. S., STEPANOV, B. M.

All-Union Scientific Research Institute of Opticophysical Measurements, Moscow

"On the Possibility of the Application of Holographic Interferometry to the Investigation of Crystals"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1092-1094

Abstract: The possibility of using the method of holographic interferometry for the investigation of crystals was shown by the authors on the basis of the example of fluorite. Used for obtaining holographic interferograms was the UIG-2 installation, developed at the All-Union Scientific Research Institute of Opticophysical Measurements. Data show that holographic interferometry makes it possible to obtain several different integral values for different observation angles of a single crystal. Due to the presence of an intensive coherent light source, the UIG-2 holographic installation makes it possible, in addition to interfereograms, also to obtain a defraction-shadow pattern of inhomogeneity of the refraction index of the sample. It is comparable in sensitivity to a light pattern obtained by means of a special pro-

USSR

GINZBURG, V. M., et al, Doklady Akademii Nauk SSSR, Vol 200, No 5, 11 Oct 71, pp 1092-1094

jection type shadow installation. Thus, holographic methods may be used for complex research on growth defects: establishment of the shape of the crystallization isotherm, shape changes of the light wave under the influence of admixtures, stresses, etc. 3 figures, 1 table, 4 references.

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USSR

UDC 548.4

GINZBURG, V. M., GUSEVA, I. N., SEMENOV, E. G., SONIN, A. S., and STEPANOV, B. M., All-Union Scientific Research Institute of Optical and Physical Measurements, Moscow

"Use of Holographic Interferometry For Crystal Studies"

Moscow, Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1092-1094

Abstract: An UIG-2 holographic device was used to study the morphology of crystal structures by obtaining interferograms of synthetic fluorite. The UIG-2 unit was developed at the All-Union Scientific Research Institute of Optical and Physical Measurements and its Operating principle is as follows: a laser beam passes through a collimating system and is split by two mirrors into two equal intensity beams. Beam 1 is reflected by a third mirror to form a reference wave front and beam 2 is reflected by a fourth mirror and strikes a diffuser to form a signal wave front. Beams forming the reference and signal wave fronts intersect at a photographic plate to register the hologram. By comparing holograms obtained with the above UIG-2 unit with holograms taken on a Michelson interferometer it was evident that holographic interferometry makes it possible to evaluate heterogeneity of refraction

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110001-3"

USSR

GINZBURG, V. M., et al., Doklady Akademii Nauk SSSR, Vol 200, No 5, 1971, pp 1092-1094

indices in the volume of a crystal sample. It is mentioned that with the use of an intensive coherent light source one can obtain diffraction-shadow pictures of diffraction index heterogeniety. With the use of holographic methods it is possible to study growth defects in crystals by establishing shapes of crystallization isotherms and the change in light wave forms under the influence of impurities, stresses, etc. The authors expressed their thanks to B. I. FEODOROVSKIY and Ye. N. LEKHTSIYER for their assistance. Three figures, one table, four bibliographical references.

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UDC 539.4.019.3

USSR

GUSEVA, I. P., NOVIKOV, S. N., and STEPANOV, A. P., Sverdlovsk

"Effect of Heat Treatment on the Strength of Al-B-So Glass Fiber"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 4, Jul-Aug 73, pp 110-117

Abstract: The heat treatment of an Al-B-Si glass fiber was investigated for the effect on strength in a temperature range from 50 to 500°C. From 50 to 200°C the glass fiber strength remains constant (about 255 kG/mm^2) after which the strength drops off with the amount of strength loss a function of the hydrofluoric acid concentration (at 500°C, strength in 0.5% HF = 145 kG/mm^2; 0.2% HF, 195 kG/mm^2; and 0.02%, 220 kg/mm^2). In distilled wate the glass fiber strength was 345 kG/mm^2 throughout the entire temperature range. It was determined that surface cracks form on the glass fiber in the 200-300°C interval and are a direct cause of strength loss. Strength loss is not attrubutable to high temperatures but is a result of the interaction of coordinate-unsaturated centers on the glass surface with the surrounding atmosphere (oxygen from the air) and the proposed mechanism of strength lowering during heat treatment of Al-B-Si and other silicate fibers is the chemisorption of oxygen by the coordination-unsaturated surface centers. Four figures, sixteen bibliographic references.

1/1

Glass and Ceramics

USSR

UDC 666.76+18

GUSEVA, I. P., and NOVIKOV, S. N.

"Surface Structure and Strength of Etched Glass Fibers"

Moscow, Fizika i Khimiya Obrabotki Meterialov, No 2, Mar/Apr 73, pp 128-133

Abstract: Using a mercury porosimeter, an attempt was made to relate the surface state of fibers treated with HF acid to their tensile strength. Alumoborosilicate fibers 6 microns in diameter with an initial strength of ~ 250 kg/mm^2 were subjected to 0.5, 0.2, and 0.02% HF for 5-100 min. The total volume of defects, which varied from 25 to 1500 Å, was used as the structural characteristic of the fiber surface. The total volume of surface defects increased considerably when fibers were treated with 0.5 and 0.2% HF acid (both concentrations produced almost identical effect) and the tensile strength of fibers sharply decreased. For these concentrations the formation of comparatively large (400-1500 Å) defects was characteristic during the first 30 min of treatment. During the next 30 min of treatment, the formation of defects slowed down because of the appearance of porous fluoride film on the fiber surface. The rate of formation of defects was the slowest for 200-400 Å pores, but it increased ten-fold for 400-1500 Å pores. The volume of pores present on the initial fibers did not increase in 0.02% HF acid. The tensile strength of

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USSR

GUSEVA, I. P. and NOVIKOV, S. N., Fizika i Khimiya Obrabotki Materialov, No 2, Mar/Apr 73, pp 128-133

these fibers decreased slightly during the first 30 min of treatment but remained constant at $\sim$ 210 kg/mm^2 for the next 30 min. Fibers treated with 0.2 and 0.5% HF decreased their initial tensile strength from 250 kg/mm^2 to 50-150 kg/mm^2, depending on the treatment time. The longer the treatment, the higher the strength losses.

2/2

UDC 543.544:(546.799+546.65)

USSR

GUSEVA, L. I., and TIKHOMIROVA, G. S.

"The Problem of the Separation of Transplutonium and Rare-Earth Elements on an Anion Exchange Resin by Means of Concentrated LiCl Solutions in the Presence of Alcohols"

Leningrad, Radiokhimiya, Vol 12, No 5, 1970, pp 771-774

Abstract: A study was carried out on the sorption of Americium and Europium on an anion exchange resin in a wide range of LiCl (0.6-13.86 N) and alcohol (0-60%) concentrations, in order to elucidate the possibility of group separation of transplutionium and rare-earth elements in LiCl concentrations $\leq$ 10N at room temperature. It was found that in 4N HCl solution with 60% alcohol, less than 10% of Am and Eu is eluted with a separation coefficient of 2.5, while the remainder is adsorbed. A similar phenomenon is observed in case of 0.6-2 N LiCl solution in the presence of $\geq$ 80% ethanol. In 6-12 N LiCl solution a real difference in distribution coefficients is observed for Am and Eu, depending on the alcohol content in the solution. The distribution coefficient Am/Eu is 51 in 8 N LiCl with 40% ethanol at room temperature, i.e., much higher than at elevated temperatures, as per the literature data.

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1/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--THE CLINICAL PICTURE OF DIFFUSE CARCINOMATOSIS OF THE BRAIN AND SPINAL PIA -U-
AUTHOR-(02)-SEMENOV, V.A., GUSEVA, L.L.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL NEVROPATOLOGII I PSIKHIATRII IMENI S. S. KORSAKOVA, 1970, VOL 70, NR 5, PP 659-664
DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--TUMOR, BRAIN, SPINAL CORD, METASTASIS, PANCREAS, LUNG, KIDNEY, CENTRAL NERVOUS SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/0255 STEP NO--UR/0246/70/070/005/0659/0664

CIRC ACCESSION NO--AP0117507
UNCLASSIFIED

2/2 031 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0117507

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE GROUNDS OF 18 PERSONAL OBSERVATIONS AND LITERATURE DATA THE AUTHORS DISCUSS THE CLINICAL PICTURE OF DIFFUSE CARCINOMATOSIS OF THE BRAIN AND SPINAL PIA. A CORRECT INTRAVITAL DIAGNOSIS WAS MADE IN 9 OF THE 18 CASES. PATHOMORPHOLOGICAL STUDIES IN 10 CASES DISPLAYED A PRIMARY VENTRICULAR TUMOR, IN 1 CASE, A TUMOR OF THE PANCREAS, IN 4 CASES, TUMORS OF THE BRONCHI AND IN 1 CASE, A HYPERNEPHROID TUMOR OF THE KIDNEY. IN 2 CASES PRIMARY TUMORS WERE NOT SEEN. THE HISTOLOGICAL PICTURE OF THE METASTASIS CORRESPONDED TO THE CLINICAL PICTURE OF THE PRIMARY TUMOR. THE MOST TYPICAL CLINICAL SYMPTOMS WERE THE FOLLOWING: SEVERE HEADACHES IN A COMBINATION WITH A MENINGEAL SYNDROME, MENTAL CHANGES, DISORDERS OF THE CRANIAL INNERVATION, THE SPINAL RADICULAR SYNDROME, A PROGRESSIVE DEVELOPMENT OF THE DISEASE AND A DEPICTION OF TYPICAL CANCER CELLS IN THE CSF. FACILITY: KLINIKA NERVNYKH BOLEZNEY MOSKOVSKOGO OBLASTNOGO N-I KLINICHESKOGO INSTITUTA IM. VLADIMIRSKOGO.

UNCLASSIFIED

USSR

UDC 621.3.032.214

POPOV, V. A., GUSEVA, M. B., and DUBININA, Ye. M.

"Effective Electron Emitter Using a Hollow-Cathode Discharge"

Moscow, Izvestiya Akademii Nauk SSSR, Seriya Fizicheskaya, Vol 35, No 2, Feb 71, pp 327-329

Abstract: The article describes a special gas-discharge system using a hollow cathode as the effective electron source. A technique is suggested for transmitting high-density electron current without significant loss through regions with discretely varying pressure from 0.4 to 10^{-4} torr. The maximum output electron current density is 300 $a \cdot cm^{-2}$.

USSR

UDC 669.245:539.376

GUSEVA, L. N., and EGIZ, I. V., Moscow

"On the Question of Creep of Solid Nickel Solutions"

Moscow, Akademiya Nauk USSR. Izvestiya. Metally, No 6, Nov-Dec 72, pp 140-143

Abstract: The study shows a change in the activation energy of creep in nickel alloys with niobium and molybdenum during reheating: in the temperature interval 800-890°C Q_n = 70 kcal/g-at. and at 890-950°C Q_n = 61-64 kcal/g-at. Pure nickel and a nickel alloy with chromium within these same temperature intervals possess a Q_n value that approaches the energy of activation of nickel self-diffusion, a fact which indicates that the creep rate is controlled by the rate of recovery brought about by diffusion. A somewhat higher value of Q_n in nickel alloys with molybdenum and niobium in the temperature interval 800-890°C can be explained by the restriction of the climb of dislocations related to the declining energy of packing defects during nickel alloying with these elements.

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1/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70
TITLE--PHOTOSENSITIZED HOMOLYTIC DISSOCIATION OF SINGLE BONDS -U-

AUTHOR-(02)-KUZMIN, M.G., GUSEVA, L.N.

COUNTRY OF INFO--USSR

SOURCE--KHIM. VYS. ENERG. 1970, 4(1), 24-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--METHYLENE, CARBON DIOXIDE, FREE RADICAL, PHOTOSENSITIVITY, DISSOCIATION, KETONE, CHEMICAL BONDING, QUANTUM CHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1117 STEP NO--UR/0456/70/004/001/0024/0027

CIRC ACCESSION NO--AP0104515

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110001-3"

2/2 022 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0104515

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. (MECO SUB2) SUB2, PHCH SUB2 I, AND ETOND SUB2 WERE PHOTOSENSITIZED IN PH SUB2 CO TO SHOW THE HOMOLYTIC DISSOCN. OF THE SINGLE BONDS O-O, C-I, AND O-N, RESP. QUANTUM YIELDS WERE NEAR UNITY FOR ALL COMPDS., WITH ACTIVATION ENERGIES 1.3, 1.65, AND 1.6 EV FOR THE COMPDS. PRODUCING ME AND CO SUB2, PHCH SUB2 AND I, AND ETO AND NO SUB2 RADICALS, RESP. QUANTUM YIELDS ARE LOW USING AS SENSITIZER C SUB6 H SUB6, 2',ACETONAPHTHONE, 1,NAPHTHYL PHENYL KETONE, AND ARE MODERATE OR HIGH USING 1,CHLORONAPHTHALENE, MICHLER'S KETONE, AND ANTHRAQUINONE.

UNCLASSIFIED

Immunology

USSR

UDC 616.912-085.371-06-085.849.114

GUSEVA, L. N., and LORAN, I. D.

"Use of Gamma-Globulin for the Prophylaxis and Treatment of Postvaccinal Complications"

Moscow, Klinicheskaya Meditsina, Vol 49, No 4, Apr 71, pp 113-116

Abstract: A certain number of persons vaccinated against smallpox exhibit aggravated sensitivity to vaccinia virus. For the prophylaxis and therapy of complications that develop upon vaccination either donor gamma-globulin derived from persons that have been vaccinated against smallpox or the so-called anti-measles gamma-globulin prepared from placental blood can be used. Samples of 10 series of gamma-globulin from placental and aborted fetal sera produced by various methods at six USSR institutes were tested. The titer of virus antibodies was determined by the neutralization reaction on the chorioallantoic membrane of 12-day old chick embryos and by the reaction of hemmagglutination inhibition on chicken erythrocytes, using vaccinia virus (smallpox vaccine) as the antigen. The titers of virus-neutralizing antibodies in 90% of the series were 1:1,000-1:2,000, while those of anithemagglutinins varied in the 1:20-1:80 range. The results obtained by the neutralization reaction, which is more specific and reliable than that of hemagglutination inhibition, were regarded as decisive. The activity of the samples

USSR

GUSEVA, L. N., and LORAN, I. D., Klinicheskaya Meditsina, Vol 49, No 4, Apr 71, pp 113-116

was sufficiently constant from institute to institute and also in relation to the year of production over the period 1966-1969. The titer of antivirus antibodies in gamma-globulin obtained on vaccination of donors with small-pox vaccine was 2-4 times higher than that of placental gamma-globulin; hence, the dose of the placental gamma-globulin must be three times higher than that of donor gamma-globulin.

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USSR

UDC 532.526+536.24.01

GLAZKOV, V. V., GUSEVA, M. D., and ZHESTKOV, B. A. (Moscow)

"Heat and Mass Transfer in the Turbulent Layer Above Permeable Plates"

Moscow, Izvestiya Akademii Nauk SSSR, Mekhanika Zhidkosti i Gaza, No 4, 1973, pp 22-31

Abstract: The temperature and concentration fields in the boundary layer above perforated plates are presented, and their relationship is established with the velocity fields given in an article by the authors, published in this journal in 1972. Results are presented of measurements of the thermal properties of the plates and with blowing-in of various coolants; also presented are empirical formulas which determine the values of the heat flux and the temperature of the permeable walls. 5 figures. 1 table.

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USSR

UDC: 532.525.4

GLAZKOV, V. V., GUSEVA, M. D., ZHESTKOV, B. A., Moscow

"Concerning Turbulent Flow Over Permeable Plates"

Moscow, Izv. AN SSSR: Mekhanika Zhidkosti i Gaza, No 4, Jul/Aug 72, pp 38-46

Abstract: The paper presents the results of a study of the velocity fields over perforated plates in a turbulent airflow when various gases are blown in. Empirical formulas are given for constructing the velocity fields in the boundary layer over permeable walls, and the problem of generality of the results is considered. The experiments were done with interchangeable perforated plates forming the upper wall of a model which was placed in a uniform airflow issuing from a rectangular nozzle. The lengthwise distribution of permeability of the plate was selected to give a constant wall temperature. The authors thank V. I. Voroshilov, O. I. Voroshilova, V. G. Kalmykov and V. P. Lukash for taking part in the work.

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USSR

UDC 537.311.33

VAVILOV, V. S., GUKASYAN, R. A., GUSEVA, M. I., KONOROVA, Ye. A., and SERGIYENKO, V. F.

"Electron-Hole Junction in a Diamond Obtained Through the Infiltration of Boron and Phosphorus Ions"

Moscow, Doklady Akademii nauk SSSR, No. 4, vol. 200, 1971, pp 821-824

Abstract: The results are given of experiments performed to establish a p-n junction in diamonds by the ion impurity method. Boron was used as the acceptor impurity and phosphorus as the donor. The reasons for this choice were that, as one of the elements of the V group in the Mendeleyev table of elements and consequently as a "natural" donor, phosphorus has the greatest amount of interest; and that, on the basis of the graph of the annealing of layers infiltrated by phosphorus, it can be assumed that a greater number of active donor centers can be obtained with the same dosage of phosphorus doping than can be obtained with such interstitial atoms as lithium and carbon. Curves are plotted for the voltampere characteristic of the junction and for the photovoltage of the junction as a function of the excitation light wavelength. The authors conclude that they have proved the possibility of obtaining p-n junctions in diamonds, and express their gratitude to E. M. Vul,

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USSR

VAVILOV, V. S., et al, Doklady Akademii nauk SSSR, No. 4, vol. 200, 1971, pp 821-824

Corresponding Member of the USSR Academy of Sciences, for his support of the work, to V. M. Gusev for his assistance with the infiltration experiments, and to Yu. A. Kuznetsov and Yu. A. Salikov for their help with the measurements. The authors are associated with the Lebedev Physics Institute, USSR Academy of Sciences, Moscow.

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USSR UDC 539.216.2.001.5

GUSEV, V. M., GUSEVA, M. I., KURINYY, V. I., TITOV, V. V., TSYPLENKOV, V. S., BARANOVA, Ye. K., STREL'TSOV, L. N.

"Investigation of the Properties of an Oxide Film Obtained by Atomic Oxygen Ion Bombardment of Silicon and Use of Such a Film for Protecting a PN Junction"

Moscow, Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1462-1467

Abstract: The paper presents the results of a study of the thickness of oxide films as a function of the conditions of silicon bombardment by atomic oxygen ions, as well as the composition and dielectric properties of the films and the space charge in them. The protective properties of oxide on structures with ion-injected PN junctions are studied. Most of the experiments were done on N-type and P-type silicon with resistivity of 7-10 Ω·cm. The specimens were irradiated in the chamber of the ILU-2 ion accelerator. It was found that the thickness of the oxide film increases in proportion with the energy of the ions and decreases as the ion current density increases. The dielectric strength of the insulating layer was $(3-10)\cdot 10^6$ V/cm. It is shown that the composition of the film depends on subsequent annealing.
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USSR

GUSEV, V. M., et al., Radiotekhnika i Elektronika, Vol 16, No 8, Aug 71, pp 1462-1467

By using ion oxidation to protect ion injected PN junctions, the authors were able to synthesize high-voltage low-power diodes with a breakdown voltage of 3.3 kV.

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1/2 041 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--HALL EFFECT IN P TYPE SEMICONDUCTOR DIAMONDS DOPED WITH BORON BY THE ION INJECTION METHOD -U-

AUTHOR-(04)-VAVILOV, V.S., GUSEVA, M.I., KONOROVA, E.A., SERGIENKO, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 17-22

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--HALL EFFECT, SEMICONDUCTOR MATERIAL, DIAMOND, BORON, IONIZATION, IMPURITY SEMICONDUCTOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1468 STEP NO--UR/0449/70/004/001/0017/0022

CIRC ACCESSION NO--AP0054324

UNCLASSIFIED

2/2 041 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054324

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HALL EFFECT AND CARRIER MOBILITY IN SEMICONDUCTOR DIAMOND LAYERS DOPED WITH B BY ION INJECTION WERE STUDIED THE MEASUREMENTS WERE CARRIED OUT AT 300-1200DEGREES K. THE PLOT OF THE LOG R SUBS (THE MEASURED HALL CONST.) VS 1-T EXHIBITS A MAX. IN THE SAME TEMP. REGION IN WHICH A DISCONTINUITY IS OBSD. IN THE PLOT OF LOG SIGMA VS. 1-T (WHERE SIGMA IS THE ELEC. COND.), THIS BEING A CONSEQUENCE OF THE FORMATION OF AN IMPURITY ZONE. AT THE DOPING LEVEL USED, THE IONIZATION ENERGY OF THE B ACCEPTOR LEVEL WAS 0.19 EV. THE OBSD. ACCEPTOR LEVELS OF THE RADIATION DEFECTS HAD IONIZATION ENERGIES OF 0.29 AND 0.4 EV. AT 500-600DEGREES K, THE MOBILITY IS 30-50 CM PRIME 2-V_SEC, AND DECREASES WITH RISE IN TEMP. THE OBSD. RELATION BETWEEN MOBILITY AND TEMP. CAN BE EXPLAINED BY THE INTERACTION BETWEEN THE CARRIERS AND THE IONIZED IMPURITIES AND LATTICE VIBRATIONS, ASSUMING DUE ALLOWANCE IS MADE FOR THE FACT THAT THE IMPURITY CONCN. IS NOT UNIFORM OVER THE LAYER THICKNESS.

UNCLASSIFIED

1/2 042 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--ELECTRICAL CONDUCTIVITY OF N AND P TYPE SEMICONDUCTOR DIAMONDS PREPARED BY AN ION INJECTION METHOD DURING STEPPED ISOCHRONOUS ANNEALING

AUTHOR-(04)-VAVILOV, V.S., GUSEVA, M.I., KONOROVA, E.A., SERGIYENKO, V.F.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1) 10-16

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--DIAMOND, LITHIUM, COPPER, POTASSIUM, ALUMINUM, BORON, IONIZATION, ELECTRIC CONDUCTIVITY, SEMICONDUCTOR CRYSTAL, ANNEALING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1983/1469 STEP NO--UR/0449/70/004/001/0010/0016

CIRC ACCESSION NO--AP0054325

UNCLASSIFIED

2/2 042 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0054325

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ELEC. COND. OF SEMICONDUCTOR DIAMOND LAYERS OBTAINED BY INJECTION OF LI, C, P, AL, AND B IONS WAS STUDIED. INJECTION OF LI, C, AND P IONS LEADS TO THE FORMATION OF AN N TYPE LAYER, WHILE THE INJECTION OF AL AND B LEADS TO A RHO TYPE LAYER. THE ELEC. COND. ACTIVATION ENERGY IS 0.25-0.45 EV. DURING ISOCHRONOUS STEPPED ANNEALING, THE ELEC. COND. OF THE LAYERS DOPED WITH B FALLS, AND THEN INCREASES WITH INCREASING TEMP. TO A VALUE SEVERAL ORDERS OF MAGNITUDE HIGHER THAN THE ORIGINAL. ON PROLONGED ANNEALING AT 1200DEGREES, THE COND. OF PREVIOUSLY ANNEALED LAYERS DOES NOT CHANGE. THREE VALUES OF THE ELEC. COND. ACTIVATION ENERGY WERE OBSD: 0.2 PLUS OR MINUS 0.02, 0.29 PLUS OR MINUS 0.02, 0.29 PLUS OR MINUS 0.02, AND 0.4 PLUS OR MINUS 0.02 EV. THIS AITRIBUTED TO THE PRESENCE OF RADIATION DEFECTS. IN SPECIMENS DOPED WITH LI, C, P, AND AL, THE COND. BEGINS TO DECREASE AT AN ANNEALING TEMP. OF 600DEGREES, WHILE AT HIGHER TEMPS. THE RESISTANCE OF THE LAYERS IS RESTORED ALMOST TO THAT OF THE UNDOPED CRYSTAL.

UNCLASSIFIED

USSR UDC: 632.4:582.288.42:633.511

FEDOTOVA, T. I., and GUSEVA, N. N., All Union Institute of Plant Protection, Leningrad

"Induced Wilt-Resistance of Cotton"

Leningrad, Mikologiya i Fitopatologiya, Vol 4, No 6, 1970, pp 512-516

Abstract: On being infected with a weakly pathogenic strain of the fungus Verticillium dahliae or with fungi of species that have a low pathogenicity for cotton (Fusarium oxysporum f. lycopersici, Aspergillus niger, or Rhizoctonia solani), cotton plants showed immunity to infection with a strongly pathogenic strain of V. dahliae, the agent of cotton wilt. The strongly pathogenic strain of V. dahliae or Fusarium oxysporum f. vasinfectum, which has a high pathogenicity for young cotton plants, did not produce an immunizing effect. Infection with the strongly pathogenic strain of V. dahliae was conducted 2 days after immunization. The immunity varied in degree, depending on the fungus by which it was produced and reached 100% with the use of the weakly pathogenic strain of V. dahliae. Development of immunity was accompanied by an increased synthesis of proteins in plants, particularly of peroxidase isoenzymes. The effects

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FEDOTOVA, T. I. and GUSEVA, N. N., Mikologiya i Fitopatologiya, Vol 4, No 6, 1970, pp 512-516

of a single immunization were not lasting; upon immunization with the weakly pathogenic strain of V. dahliae, the induced immunity disappeared with 8-13 days. The content of isoenzymes approached that of nonimmunized controls toward the 13th day. Repeated exposure, rather than a single infection with an immunizing strain, may be assumed to occur in nature, however. It has been observed that cotton varieties which are resistant to cotton root rot are susceptible to verticillosis and those that are susceptible to root rot show resistance to verticillosis. Immunity induced by another pathogenic factor may be involved here. Experiments to check the correctness of this assumption will be conducted.

2/2

Graphite

USSR UDC 539.216.2

GALKIN, YU. A., GUSEVA, N. P., DERGUNOVA, V. S., KONOKOTIN, V. V., KRAVETSKIY G. A., KUDINOV, V. V., AND SHORSHOROV, M. KH., Moscow,

"Interaction of Refractory Oxides with Graphite In Spraying"

Moscow, Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 72, pp 94-99

Abstract: The interaction of refractory oxides with graphite in flame spraying was investigated in order to develop protective means against oxidation of carbographitic materials. The investigated dependences included the effect of base preheating on the bonding strength with the protective coatings and its density, effects of silicate and borosilicate sublayers on the bonding strength and the activation energy of the chemical interaction of sublayers with oxide coatings, the effect of graphite porosity on the bonding strength, and the effect of addition of molybdenum, silicon, and aluminum into the sprayed oxide on the gas density and the oxidative resistance of coatings. The kinetics of the increasing bond strength of Al_2O_3 and ZrO_2 coatings sprayed on preheated graphite are analyzed. The required activation energy of the graphite surface and its strong bond with the sprayed Al_2O_3 was found to be close to the half of the energy of the atomic bond in the graphite lattice,
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GALKIN, YU. A., et al., Fizika i Khimiya Obrabotki Materialov, No 3, May-Jun 72, pp 94-99

which is in accordance withe graphite preheating over 1000°C when spraying. Silicate and borosilicate sublayers are recommended; they guarantee a bond strength of coatings on the level of graphite strength. Five illustrations, one table, three bibliographic references.

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USSR UDC 621.3.035.2

KRAVETSKIY, G. A., DERGUNOVA, V. S., SLAVINA, L. M., CUSEVA, N. P., and SAMOSUDOV, V. V.

"Joining Graphite With Graphite and Metal by Electric-Arc Welding"

Moscow, Tsvetnyye Metally, No 7, Jul 71, pp 44-47

Abstract: A method of joining graphite parts with graphite and metallic parts by means of a metallic interlayer deposited on the surface of the graphite part by the electric-arc welding practice is discussed. The following materials with amean linear expansion coefficient with respect to graphite and metal were investigated for their utilization as interlayers: V, Ti, Mo, W, Zr, Nb, and Kovar. It was found that Ti and Zr are the most promising interlayer materials. The use of Kovar as an interlayer material is recommended for welding graphite with stainless steel and other steel types. Three illustrations, three tables, six biblio. refs.

1/1

USSR UDC 669.71.053.2

KOZLOV, V. M., GUSEVA, N. S., VERETINSKIY, V. N.

"Reduction of Kaolin With Carbon"

Tr. Vses. N-i. i Proyektn. In-ta. Alyumin., Magn. i Elektrodn. Prom-sti [Works of All-Union Scientific Research and Planning Institute of the Aluminum, Magnesium and Electrode Industry], 1970, No. 71, pp 191-200. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, G130, by the authors).

Translation: The reduction of kaolin by carbon from a briquetted charge in the 1300-2000° temperature interval is studied. A reduction mechanism is suggested. Reduction is performed for mullite and SiO_2, produced in the process of mullitization of kaolin before the beginning of reduction. The reason for limiting the content of Al in alloys of Al with Si not containing Al_4O_3 is stated. 2 figs; 2 tables; 7 biblio. refs.

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USSR

UDC: 51

GUSEVA, O. V.

"Concerning the Stability of a Convex Programming Problem"

Moscow, Mat. metody resheniya ekon. zadach--sbornik (Mathematical Methods of Solving Economics Problems--collection of works), No 3, "Nauka", 1972, pp 73-75 (from RZh-Kibernetika, No 5, May 73, abstract No 5V629 by S. Lebedev)

Translation: It has been established for convex programming (RZhMat, 1969, 5V427) that the relation of duality -- equality of extremum values in the direct and dual problems -- is valid when and only when the problem is formulated correctly relative to restrictions, i. e. for a sequence of problems with limitations approximating the preassigned restrictions the extremum values converge to the value of the initial problem. Conditions of stability are presented which ensure correctness of formulation of the problem.

Let D, E be Banach spaces; R is a compact from D; f(x) is a continuous functional convex upward on R; G is a convex

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USSR

GUSEVA, O. V., Mat. metody resheniya ekon. zadach, No 3, "Nauka", 1972, pp 73-75

closed cone in E with vertex at zero defining the order relation $\geqslant$; g(x) is a continuous operator from R into E, convex upward relative to G. Put into correspondence with the convex programming problem

$$\sup\{f(x)|g(x)\geqslant 0,\quad x\in R\} \qquad (1)$$

is the parametric problem

$$\varphi(y)=\sup\{f(x)|g(x)\geqslant y,\quad x\in R\}.$$

The functional $\phi(y)$ is defined on the set $A_0 = \{y|y\in E,\ g(x)\geqslant y$ for some $x\in R\}$. A condition of stability is introduced: for some $C<\infty$ and any $y\in A_0$

$$\varphi(y)-\varphi(0)<C\|y\|. \qquad (2)$$

It is proved that condition (2) is necessary and sufficient for the duality relation to be satisfied for (1) (if (1) is solvable) and the problem which is its dual.

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GUSEVA, P.N.

(6)

THE BEHAVIOR OF BOR-60 REACTOR CONTROL AND SAFETY RODS DURING THEIR OPERATION

[Article by S. N. Votinov, V. E. Gol'tsev, P. N. Guseva, B. I. Mineyev, V. I. Prokhorov, and [illegible] Scientific Research Institute of Atomic Reactors imeni V. I. Lenin; Dimitrovgrad, Pogloshchayushchiye materialy i sterzhni regulirovaniya bystrykh reaktorov, Russian, International Working Group for Fast Reactors Specialists Meeting, International Atomic Energy Agency, Dimitrovgrad, 4-6 June, 1973]

The results of an investigation of automatic regulation (AR) rods, burn-up compensation (KS-2) rods, and rods for compensation of the temperature and power effects of reactivity (KS-1), which had operated in the BOR-60 from 1 year to 2.5 years, are given. It was established that the basic radiation effects determining the efficiency of the PEL (absorbing elements) is the bulging (swelling) of the carbide, the magnitude of which is associated with temperature and burn-up. Gas liberation from B_4C at working temperatures for the operation of the rod is not great and does not exceed 10% out of the total formed.

1. Introduction

In a reactor, for reliable operation, regulating rods of various designation are used: emergency protection (AZ) rods, automatic regulation (AR) rods, and rods for compensation of burn-up and temperature effects (KS).

The requirements imposed upon them also differ. Thus, for AZ rods the main thing is the efficiency of the absorbent, and requirements with respect to radiation resistance are less rigid. AR and KS rods, their high radiation resistance must be the basic factor.

USSR

UDC 669.018.45-15:539.214

KAYBYSHEV, O. A., MATVEYEV, L. V., GUSEVA, S. P., and MARKELOV, A. A.,
Ufa Aviation Institute

"Relation Between the Structure and Properties of EI929 Alloy"

Moscow, IVUZ. Chernaya Metallurgiya, No 5, 1972, pp 125-128

Abstract: An investigation is made of the effect which structure obtained by various kinds of heat treatment has on the properties of EI929 heat resistant alloy. Open and vacuum-arc melts were studied. The chemical composition of both melts corresponded to technical specifications. The hardening γ'-phase was analyzed: the amount of γ'-phase, mean grain size and lattice parameter were determined. The structure and properties of the alloys are compared. The high-temperature strength of the alloy can be attributed to grain size, while the ductility is a function of the distribution and degree of dispersion of the hardening γ'-phase.

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USSR

UDC 547.434.661.718.1

GUSEVA, T. A., KOZLOV, L. M., and SHERMERGORN, I. M., Kazan' Veterinary Institute Imeni N. E. Bauman

"Nitroalkyl Esters of Phosphorus Acids"

Leningrad, Zhurnal Obshchey Khimii, Vol 43 (105), No 2, Feb 73, pp 292-295

Abstract: In searching for new, biologically active compounds, symmetrical and mixed dialkyl phosphites containing a nitrogroup in the aliphatic radical were obtained by condensing nitroalcohols with phosphorus trichloride or with alkyl dichlorophosphites. The dialkyl phosphites were then condensed with chloral yielding esters of the α-hydroxy-β,β,β-trichloroethylphosphonic acid -- analogs of chlorophos. Biological evaluation showed that introduction of a nitrogroup into an ester radical led to a loss of insecticidal potency.

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GUSEVA, T.M.

EFFECTIVENESS OF SUZ (CONTROL AND SAFETY RODS) OF FAST REACTORS AND MEANS OF INCREASING IT

[Paper by T. M. Guseva and T. M. Ovchinnikova, Scientific Research Institute of Atomic Reactors imeni V. I. Lenin, Dimitrovgrad; Dimitrovgrad, Poglotshchayushchiye materialy i sterzhni regulirovaniya bystrykh reaktorov (Absorbing materials and control rods for fast reactors), International Working Group for Fast Reactors Specialists Meeting, Dimitrovgrad, 4-6 June, 1973]

By working from operating conditions of SUZ rods of fast reactors and the requirements imposed upon them, with a consideration of the specifics of the operation, criteria are proposed for evaluation of the efficiency of the FEL (absorbing elements) of fast reactors. Ways are considered for increasing the efficiency of SUZ rods of fast reactors, the realization of part of which made it possible to increase the service life of the AR (automatic regulation) and EP rods of the BOR-60 reactor.

1. Introduction

The development of atomic power engineering in the Soviet Union is characterized by two stages. At the first stage, the basis of atomic electric-power stations (AES) consisted of water-cooled, water-moderated and uranium-graphite reactors operating on thermal neutrons. In the second stage, which will begin in 1980-85, reactors operating on fast neutrons will take the dominating position in AES [1].

For the purpose of accumulating experience in the development and operation of fast reactors of large capacity, several fast reactors are successfully operating in the USSR and others are under construction. These are the operating BR-5 and BOR-60 reactors, the BN-350 reactor, which is being prepared for

BORON CARBIDE PROPERTIES AND BEHAVIOR UNDER IRRADIATION

[Paper by V. P. Gol'tsev and T. M. Guseva, Scientific-Research Institute for Atomic Reactors imeni V. I. Lenin; Dimitrovgrad, Pogloshchayushchiye materialy i sterzhni regulirovaniya bystrykh reaktorov (Absorbing Materials, Control Rods for Fast Reactors), Meeting of specialists of the International Working Group for Fast Reactors, Russian, Dimitrovgrad, 4-8 June, 1973]

The physico-mechanical properties of boron carbide, having various physical densities and enrichments with ^{10}B, are presented. The irradiation effects in boron carbide are considered, and also its behavior during irradiation, depending upon the initial structure and composition, density and enrichment, temperature and neutron spectrum. On the basis of an analysis of the investigations made, conclusions were reached concerning the variation of the basic properties of boron carbide, determining its radiation stability, and the boundary conditions for its applicability have been established.

1. Introduction

Boron carbide is the most widely distributed absorbing material in SUZ organs and the biological shield of nuclear reactors that are operating, under construction, or being designed at the present time. This is explained by a number of the favorable properties of boron carbide, among which we should include: its high capability for the absorption of neutrons as a consequence of the large absorption cross-section and the concentration of boron-10 nuclei per unit volume; its low density; its high thermal conductivity; its good workability; and the availability and economical production of boron carbide based on natural boron.

GUSEVA, T. N.

SESSION XV

XV-1. HARDNESS OF AUTOEPITAXIAL SILICON LAYERS

[Article by T. S. Kondrat'yeva, N. A. Belov, R. N. Erlikh, L. K. Melikyan, I. N. Guseva, Leningrad; Vovchishak, III Simpozium po Protsessam Rosta i Sin-tezu Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June 1972, p 212]

This paper is devoted to the study of the hardness of silicon crystals used as substrates and autoepitaxial layers grown by the method of reducing silicon tetrachloride by hydrogen.

Experimental data are presented on the hardness of crystals as a function of the mechanical, chemical and electrochemical processing and with respect to the effect of different types of treatment on the mechanical properties of the autoepitaxial layer. It is demonstrated that the anisotropy of the hardness of the crystals and the autoepitaxial layers of silicon has an octahedral nature -- the magnitude of the hardness (H_μ) decreases on going from the {111} facets to the {110} ones. The magnitude of H_μ is defined as a function of the concentration of the alloying mixture in the layers. The data obtained were checked by calculating the Kolmogorov criterion on the Minsk-22 computer by the M. M. Utin procedure. The statistical analysis indicates a decrease in hardness with an increase in the phosphorous concentration in the layers.

The variation in hardness with respect to depth of the layers was observed which is caused by the effect of the substrate properties: the type and concentration of the alloying admixture, the type of surface machining.

In this paper it is demonstrated that the magnitude of the hardness is a parameter which permits estimation of the perfection of the autoepitaxial layers reflecting the interrelation of the mechanical and structural properties with the crystallization conditions.

UDC 577.1:615.7/9

USSR

PAVLENKO, S. M., GUSEVA, V. A.

"Dynamics of the Development of Adaptive Reactions to the Prolonged Action of Industrial Poisons Entering the Body by Different Routes"

V sb. Farmakol. Khimoterapevt. sredstva. Toksikol. Probl. toksikol. (Pharmacology. Chemotherapeutric Agents. Toxicology. Problems of Toxicology--Collection of Works), vol 5 (Advances in Science and Technology. All-Union Institute of Scientific and Technical Information, USSR Academy of Sciences), Moscow, 1973, pp 110-119 (from RZh-Biologicheskaya Khimiya, No 17, Sep 73, Abstract No 17 F1897 by the author)

Translation: Description of the so-called complex action of substances, i.e., the biological effect observed in animals after simultaneously inhaling substances and receiving them through the gastrointestinal tract.

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UDC 621.791.754.293:669.295

USSR

GUSEVA, YE. A., KLIMYCHEV, A. I., POMICHEVA, I. A., and MAZOK, V. K.

"Argon-Arc Welding of Titanium Alloys by Through Fusion"

Moscow, Svarochnoye Proizvodstvo, No 2, Feb 70, pp 15-16

Abstract: A procedure is described for through fusion welding of titanium alloys up to 10 mm thick without dressing the edges. The welds obtained by this procedure have good penetration and a high weld shape factor. There are no sharp transitions from fusion to basic metal on the backside of the weld. X-ray control of the welded joints showed that the pores in the weld are very small. Comparative data are presented showing that the strength of samples without reinforcement for the welded joints executed by through fusion is approximately 10 kg/mm^2 higher than in the case of two-pass welding.

It is shown that through fusion can be obtained only under certain welding conditions. The basic condition for through fusion welding is insuring a specific arc pressure on the pool of molten metal which can overcome the surface tension, force the molten metal out of the pool, and equalize the hydrostatic pressure of the liquid metal. The comparatively low specific weight of titanium alloys and correspondingly lower hydrostatic pressure provide a basis for assuming that for these metals through fusion welding can be realized more easily than for steel.

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USSR

GUSEVA, YE. A., et al., Svarochnoye Proizvodstvo, No 2, Feb 70, pp 15-16

Conditions for argon-arc through fusion welding are calculated for sheet material made of OT4 and VT6S alloys 4, 8, and 10 mm thick.

USSR UDC 669.71.43

MERKULOV, L. G., YAKOVLEV, L. A., GUSEVA, YE. K., LAZAREV, G. I., MARAYEV, S. YE.

"New Method of Ultrasonic Control of the Purity of Aluminum Ingots Purified by Zone Melting"

Tr. Vses. n.-i. i proyektn. in-ta alyumin., magn. i elektrodn. prom-sti (Works of the All-Union Scientific Research and Planning and Design Institute of Aluminum, Magnesium and Electrode Industry), 1970, No 71, pp 128-134 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G176)

Translation: The ultrasonic method of controlling the purity of aluminum is based on the effect of dislocation absorption of the ultrasonic vibrations in crystalline materials. Practical implementation of this procedure is realized as applied to the problem of finding the boundary of the pure part of the aluminum ingots obtained by zone melting. Comparison of the data from ultrasonic measurements and the method of residual electrical resistance demonstrated good correspondence of the results. Application of the ultrasonic method of finding the boundary of the pure part of the ingots permitted the yield of Al type A999 to be increased by 8% on the average under plant conditions. The

USSR

MERKULOV, L. G., et al., Tr. Vses. n.-i. i proyektn. in-ta alyumin. magn. i elektrodn. prom-sti, 1970, No 71, pp 128-134

procedure developed was used during the process of developing the optimal technological process for zone purification of large aluminum ingots weighing up to 70 kg. High sensitivity, simplicity, and reliability of the ultrasonic method permit it to be recommended as an express method of industrial control of aluminum purified by zone melting. There are 3 illustrations.

2/2

USSR

UDC 669.71.43(088.8)

MERKULOV, L. G., YAKOVLEV, L. A., and GUSEVA, Ye. K.

"Ultrasonic Device for Determination of Pure Metal Boundary in Ingots"

USSR Author's Certificate No 265527, Filed 28/09/67, Published 10/07/70, (Translated from Referativnyy Zhurnal-Metallurgiya, No 2, 1971, Abstract No 2 G162 P)

Translation: An ultrasonic device is suggested for determination of the boundary of pure metal in ingots, for example of Al, produced by zone melting. The device contains a synchronizer, an exciter pulse generator, a radiating and receiving head, a matching stage, an attenuator, a high-frequency amplifier, a cathode ray tube, a scan generator, and a para-phase amplifier. To increase the accuracy of determinations, the device is equipped with a switch and calibrating acoustical channel consisting of a specimen of pure Me and an acoustically coupled undamped piezoplate connected to a second output of the generator and one terminal of a switch, the common terminal of which is connected to the matching stage. 1 figure.

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USSR

UDC 621.314.61

GUSEVSKIY, YU. I.

"Computation Of Circuits For Control Of Thyristors"

Tr. Proyektno-konstrukt. i tekhnol. in-ta tyazh. elektromashinostr. Khar'kov. z-da "Elektrotyazhmash" (Works Of The Planning-Design And Technological Institute Of Heavy Electrical Machine Construction Of The Plant "Electrical Heavy Machinery"), 1970, 1, pp 143-150 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2B575)

Translation: An analysis is made of the operation of circuits for control of thyristors with supply by a source of emf and a current source. A method is given for an optimum choice of the parameters of limiting and shunting resistors connected respectively in series and in parallel to the control junction of the thyristor. 4 ill. 4 ref. I.R.

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Acc. Nr: AP0049806 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: 4R0188

G

101590j **Interaction of alkoxysilanes with Aerosil.** Gusein-Zade, A. F.; Nudel'man, Z. N.; Garber, A. M.; Galil-Ogly, F. A.; Rostovtseva, E. E.; Malyshev, A. I. (Nauch.-Issled. Inst. Rezin. Prom., Moscow, USSR). *Kauch. Rezina* 1970, 29(1), 6-8 (Russ). The reaction of $Me_2Si(OMe)_2$ (I) with Aerosil (II) was studied by ir spectroscopy at 2600-3000 cm^{-1}. The reaction of I with II involved condensation with SiOH groups of II to give MeOH (as an intermediate by-product), which further condensed with SiOH groups to give SiOMe groups. I inhibited the crosslinking of rubber; however, due to the formation of SiOMe groups on the surface of II, some crosslinking did occur. CKJR

REEL/FRAME
19801728

Acc. Nr. AT0045638 Abstracting Service: CHEMICAL ABST. Ref. Code UR0020

GUSEYNOV A.G.

89718x Preparation of methyl methacrylate from methacrylonitrile. Mekhtiev, S. I.; Dalin, M. A.; Guseinov, A. G.; Sleptsova, O. M.; Lukina, E. M.; Polchaev, R. A. (USSR). *Dokl. Akad. Nauk SSSR* 1970, 190(1), 108-9 [Chem] (Russ). Me methacrylate (I) was prepd. in 86.2% yield in a continuous reactor by heating equimolar amts. of methacrylonitrile and 84% H_2SO_4 30 min at 100°, followed by heating the intermediate methacrylamide with 2 moles MeOH 2 hr at 95°. I (87.8%) was also obtained when the process was run in a 60-l. exchange reactor. DBJR

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REEL/FRAME
19780624

7

USSR

UDC 518.517.948

GUSEYNOV, A. I., Academician of the Academy of Sciences, Azerbaidzhan SSR,
GASANOV, G. M., Institute of Mathematics and Mechanics, Academy of Sciences of the Azerbaidzhan SSR, Baku

"On an Evaluation of the Error in Approximate Solutions to a Linear Integral Equation"

Moscow, Doklady Akademii Nauk SSSR, Vol 211, No 6, 21 Aug 73, pp 1270-1272

Abstract: The study of convergence by the method of collocation for integral equations has led primarily to uniform and mean square metrics for the corresponding assumptions with respect to the kernel and absolute term of a given equation. The authors use the method of collocations based on the interpolation process to obtain approximate solutions of a linear integral equation. Using some properties of the Hausdorff metric and the approximation of a function with respect to this metric, they establish evaluations of error in the approximate solutions in the metric of a space of summable functions; the evaluations obtained are expressed by a modulus of non-monotonicity of the kernel and absolute term of the equation.

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USSR UDC 57.086.82:621.397.13

GRIBANOVSKIY, I. B., GUSEYNOV, A. M., and CHERNUKH, A. M., Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Television Microscopy as a Method of Vital Microscopy"

Moscow, Patologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 6, Nov/Dec 71, pp 78-81

Abstract: A television camera attached to a light microscope and functioning as a scanning device yields a picture of many advantages, due to the fact that the transmitting tubes are highly sensitive to visible light and to ultraviolet and infrared rays. As a result, by illuminating the object with short wave light, the resolving power of the microscope is magnified. By using monochromatic light of appropriate wavelength, objects indiscernible in regular light become visible on the television screen. By electronic magnification of the contrast, the image on the television screen can be magnified four times beyond the magnification of the microscope, without loss in resolution. Finally, the information about the object under investigation is transformed into electronic impulses which can be processed mathematically.

APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201110001-3"

USSR UDC 621.311.088

GUSEYNOV, F. G., GUSEYNOV, A. M., SADYKHOV, R. R.

"Study of the Effect of the Number of Machines of an Initial Electric Power System on the Equivalence Error"

Sekhn. tereggi ugrunda, Za tekhn. progress (For Technical Progress), 1970, No 12, pp 18-20 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye193)

Translation: A specific example is used to demonstrate the nature of variation of the basic qualitative indexes of estimating the possibility of making electric systems equivalent with respect to degree of their complexity. It has been established that with complication of the initial system the equivalence error for investigating the electromechanical transient processes in the low oscillation mode decreases. This increases the possibility of simplifying complex multimachine electrical systems. There is 1 illustration, 5 tables and a 3-entry bibliography.[Azerbaydzhan Scientific Research Institute of Power Engineering, Baku]

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1/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--THE PARTICIPATION OF THE LUNGS IN FIBRINOLYTIC PROCESSES OF THE ORGANISM -U-

AUTHOR-(05)-SOLOVYEV, G.M., GUSEYNOV, CH.S., GEBEL, G.YA., CHISTYAKOV, V.N., FLEROV, YE.V.

COUNTRY OF INFO--USSR

SOURCE--BYULLETEN' EKSPERIMENTAL'NOY BIOLOGII I MEDITSINY, 1970, VOL 69, NR 5, PP 22-25

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--LUNG, BLOOD VESSEL, LACTIC ACID, INTRAVENOUS PERFUSION, ACIDOSIS, FIBRINOLYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0369 STEP NO--UR/0219/70/069/005/0022/0025

CIRC ACCESSION NO--AP0121057

UNCLASSIFIED

2/2 022 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0121057

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN EXPERIMENTS ON DOGS THE AUTHORS STUDIED THE REACTION OF PULMONARY VESSELS TO THE ADMINISTRATION OF A 30PERCENT SOLUTION OF LACTIC ACID WHICH CAUSES SPASM OF PULMONARY VESSELS AND A STATE OF METABOLIC ACIDOSIS. IT IS SHOWN THAT IN THE BLOOD OUTFLOWING FROM THE LUNGS THE CONTENT OF FIBRINOLYSIS PROACTIVATORS AND FIBRINOLYTIC ACTIVITY ARE GHIGHER IN COMPARISON WITH THOSE IN THE BLOOD INFLOWING TO THE LUNG. FACILITY: SCIENTIFIC RESEARCH INSTITUTE OF CLINICAL AND EXPERIMENTAL SURGERY, MOSCOW.

UNCLASSIFIED

SPRS 59268
6-73

IV-3. EFFECT OF THE ELECTRIC FIELD ON THE GROWTH RATE AND PERFECTION OF GALLIUM ARSENIDE FILMS

[Article by Sh. M. Guseynov, N. N. Sheftal', Kh. A. Hasanaliyev, Institute of Crystallography of the USSR Academy of Sciences, Dagosuniversitet; Novosibirsk, III Simpozium po Protsessam Rosta i Svoystvam Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 46]

In this paper a study was made of the effect of the constant electric field on the growth rate and the perfection of epitaxial films of gallium arsenide grown on the insulating substrates by the $AsCl_3$ transport reaction method. The crystallization was carried out in a horizontal chamber adapted to study the effect of the electric field intensity on the film growth process. On the insulating substrates of quartz, fluorite and mica with orientation of (111) and (100) respectively, n-type, highly pure GaAs was grown. The experimental procedure and the thermal conditions of the crystallization process were described.

A study was made of the field effect on the growth rate of the film in the 30-100 volt/cm range. An increase in the growth rate was detected which is proportional to the field intensity beginning with 40 volts/cm except with a negative potential on the substrate. For a film grown on a quartz substrate for example, growth rate with E = 50 volts/cm is 0.55 microns/minutes as opposed to 0.45 micron/minute for E = 0.

Results are presented from metal-x-ray and electron diffraction studies of films indicating worsening of the crystal lattice of the latter for fields above 50 volts/cm. The morphology of these films is distinguished by a dull surface and the appearance of growth configurations in contrast to the films deposited in the absence of a field and for fields to 30 volts/cm.

The explanation for the mechanism of the effect of the field on the growth rate and perfection of the GaAlAs arsenide films is presented.

GUSEYNOV, M.M.

1/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--CRACKING OF A WIDE FRACTION OF SIAZAN PETROLEUMS OVER AN ALUMINA CHROMIA CATALYST -U-

AUTHOR-(05)-GUSEINOV, D.A., GAMIDZADE, G.A., ABASOVA, N.A., GADZHIEV, G.G., AKOPYAN, M.P.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., NEFT GAZ 1970, 13(3), 47-9

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, MATERIALS, PROPULSION AND FUELS

TOPIC TAGS--GASOLINE, CATALYTIC CRACKING, ALUMINA, CHROMIUM, METHANE, HYDROGEN, THERMAL EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/2096 STEP NO--UR/0152/70/013/003/0047/0049

CIRC ACCESSION NO--AP0127469

UNCLASSIFIED

2/2 027 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0127469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A GASOLINE LIGROINE FRACTION, B. IS SMALLER THAN OR EQUAL TO 220DEGREES, WAS PROCESSED. AS THE TEMP. INCREASED FROM 480 TO 560DEGREES, THE YIELD OF H-CH SUB4 FRACTION INCREASED AND THAT OF UNSATD. HYDROCARBONS DECREASED FROM 47.8 TO 44.9 WT. PERCENT. THE MAX. GAS YIELD OF 72.0 WT. PERCENT BASED ON RAW MATERIAL WAS OBTAINED AT 0.5 HR PRIME NEGATIVE1 AND 560DEGREES WHEN 3.2PERCENT COKE WAS DEPOSITED ON THE CATALYST, BUT THE OPTIMUM GAS AND UNSATD. HYDROCARBON YIELD WAS OBTAINED AT 0.7 HR PRIME NEGATIVE1. THE HIGHER YIELD OF 87PERCENT CATALYZATE WAS OBTAINED AT 0.7 HR PRIME NEGATIVE1 AND 480DEGREES. THE LIQ. CATALYZATE WAS USED FOR HIGH OCTANE GASOLINE. CHARACTERISTICS OF THE RAW MATERIAL AND RESULTS ARE TABULATED. FACILITY: AZERB. INST. NEFTI KHIM. IM. AZIZBEKOVA, BAKU, USSR.

UNCLASSIFIED

UDC 632.95

USSR

ISMAYLOV, R. G. A., GUSEYNOV, D. M., MEKHTIYEV, S. D., SHCHEGOL', Sh. S., ISAYEVA, F. G. A., KONYSHEV, I. N.

"Plant Growth Regulator"

USSR Author's Certificate No 334961, Filed 30/07/69, Published 24/05/72 (Translated from Referativnyy Zhurnal Khimiya, No 24(II), 1972, Abstract No 24N643 P, by T. A. Belyayeva)

Translation: It is suggested that the Na-salt of octyltoluic acid (I) be used as a plant growth regulator. I is produced by alkilation of xylenes with diisobutylene with subsequent oxidation of tert-octylxylene with O_2 and neutralization of the acid with an aqueous solution of NaOH or soda. The influence of I on the coleoptiles of wheat sprouts and the growth of winter wheat roots is demonstrated.

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USSR

UDC 010.49

ABDULLAYEV, G. B., ANTONOV, V. B., BELEN'KIY, G. L., GUSEYNOV, D. T., NANI, R. KH., and SALAYEV, E. YU., Institute of Physics, Academy of Sciences Azerbaydzhan SSR

"Photoconductivity of $CdIn_2S_4$ Single Crystals, Recombination Scheme"

Baku, Izvestiya Akademii Nauk Azerbaydzhanskoy SSR, Seriya Fiziko-Tekhnicheskikh i Matematicheskikh Nauk, No 4, 1971, pp 127-131

Abstract: A study of the photoelectric properties of $CdIn_2S_4$ single crystals under intrinsic excitation, thermostimulated conductivity, as well as the radiation spectrum of crystals under the action of fast electrons, enabled the authors to obtain information on the energy level spacing in the forbidden band of $CdIn_2S_4$ and to determine some recombination and trapping center parameters.

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USSR

GUSEYNOV, D. Ya., Professor

"Main Psychotropic Substances"

Baku, Azerbaydzhanskiy Meditsinskiy Zhurnal, No 4, Apr 71, pp 40-41

Translation: Modern medical science is devoting special attention to the development of psychopharmacology.

At the present time our scientists are conducting intensive investigative work on the study and introduction into medical practice of new psychotropic substances.

The most important of them are described in this article.

1. Diethylamide lysergic acid -- Diaethylamidum acidi lyserginicum seu LSD-25.

Disrupts the psyche, causes hallucinations, but consciousness is maintained.

Used to diagnose schizophrenia, and also to create a model of psychosis in animals.

2. Mescaline -- Mescalinum

Under its influence a dimming of consciousness takes place, and hallucinations and psychosis develop.

Used to diagnose certain mental illnesses and to create a model of experimental psychosis.

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USSR

GUSEYNOV, D. Ya., Azerbaydzhanskiy Meditsinskiy Zhurnal, No 4, Apr 71, pp 40-41

3. Harmine -- Harminum

Calms the central nervous system, disrupts the psyche, causes hallucinations, eliminates spasms.

Used in parkinsonism. Prescribed for internal use [in dosages of] 0.01-0.02.

4. Indian cannibis -- Cannbis [sic] indica.

The active ingredient is a tar used under various names [anasha [transliterated], hashish, marijuana, bang, dagga, and others). This tar is smoked, chewed, and added to food and drink as a stupefacient.

Anasha disrupts the psyche, causes hallucinations and euphoria, and subsequently psychoses and schizophrenia develop. It has no medicinal significance.

5. Iprazide -- Iprazidum.

Stimulates the mental sphere, eliminates states of depression. The effect comes on gradually over 12 to 16 hours and lasts 7 days. It is used for schizophrenia, psychoses, states of depression, and hypertonia. Prescribed [in dosages of] 0.025-0.05 three or four times daily.

6. Imizine -- Imizinum seu Tofranilum

Has a thymoleptic effect, eliminates states of depression. Used in cyclophrenia and other mental disorders. Prescribed for internal use [in dosages of] 0.025-0.63 or is introduced intramuscularly [in dosages of] 2 ml of

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USSR

GUSEYNOV, D. Ya., Azerbaydzhanskiy Meditsinskiy Zhurnal, No 4, Apr 71, pp 40-41

1.25 percent solution two to four times a day.

7. Transamine -- Transaminum

By blocking the enzyme monoaminoxidase (MAO), it increases the content of biogenic amines in the brain and by so doing eliminates states of depression.

Used for mental disorders accompanied by severe depression. Prescribed for internal use [in dosages of] 0.02 twice a day.

8. Phenamine -- Phenaminum seu Benzedrinum

Sharply stimulates the central and sympathetic nervous systems. Increases blood pressure, dilates the pupils, quickens pulse, relieves fatigue and somnolence. Perception is facilitated in people who have taken phenamine, thinking and memory are improved, motor activity and speech are increased, and mental and physical efficiency are improved.

Used in narcolepsy, alcoholic psychoses, psychogenic depression, and poisonings by narcotics and somnifacients. Prescribed for internal use [in dosages of] 0.05-0.01 once or twice a day.

9. Phenatine -- Phenatinum

Stimulates the central nervous system; in contrast to phenamine, it does not increase, but rather lowers blood pressure.

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USSR

GUSEYNOV, D. Ya., Azerbaydzhanskiy Meditsinskiy Zhurnal, No 4, Apr 71, pp 40-41

Used for mental and physical fatigue, and also for hypertonia. Prescribed for internal use [in dosages of] 0.05-0.15 two or three times daily and is introduced subcutaneously [in dosages of] 1 ml of 5 percent solution.

10. Piridrol -- Piridrolum

Intensifies higher nervous activity, eliminates states of depression. Used ir narcolepsy and psychoses accompanied by depression and apathy. Prescribed for internal use [in dosages of] 0.001-0.002 two or three times a day.

11. Meridil -- Meridilum

Stimulates the central nervous system, eliminates states of depression. Used in psychoses and states of depression. Prescribed for internal use [in dosages of] 0.01-0.15 two or three times a day.

12. Aminazin -- Aminazinum seu Largactilum

Calms the central nervous system, lowers blood pressure and body temperature, halts vomiting, slows down pulse, eliminates the effect of histamine.

Successfully used in schizophrenia, psychoses, neuroses, delirium tremens, and hypertonia, toxicoses of pregnancy, dermatoses, and in surgery to create artificial hypothermy. Prescribed for internal use [in dosages of] 0.025-0.05-0.1, introduced intramuscularly, 10-20 ml of 0.5 percent solution, and intramuscularly [in dosages of] 1-2 ml of 2.5 percent solution.

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USSR

GUSEYNOV, D. Ya., Azerbaydzhanskiy Meditsinskiy Zhurnal, No 4, Apr 71, pp 40-41

13. Meprotan -- Meprotanum seu Andaxinum

Eliminates internal anxieties [perezhivaniya] and feelings of fear and alarm, calms the central nervous system. Used in physchoses, neuroses, epilepsy, insomnia, and moderate hypertonia. Prescribed for internal use [in dosages of] 0.2-0.4 three or four times a day.

14. Amizil -- Amizylum

Calms the nervous system, eliminates spasms and the effect of histamine, restores disrupted pulse. Used in psychoses, neurcses, and states the depression and phobia. Prescribed for internal use [in dosages of] 0.001-0.002 three or four times a day.

15. Reserpine -- Reserpinum seu Serpasilum

Main alkaloid of the plant Rauwolfia serpentina. Calms the central nervous system, eliminates feelings of fear, longing [toska], and alarm, lowers blood pressure, and slows down pulse.

Wisely used in schizophrenia, psychoses, neuroses, hypertonia, taxicardia, thyrotoxicoses, and others. Prescribed for internal use [in dosages of] 0.0001-0.0003 two or three times a day, introduced intramuscularly [in dosages of] 0.5-1 ml of 0.1 percent solution. Resume.

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1/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--RECOMBINATION OF NONEQUILIBRIUM CURRENT CARRIERS IN P,INDIUM ANTIMONIDE AT TEMPERATURES BELOW 77DEGREESK -U-

AUTHOR-(04)-GUSEINOV, E.K., NASLEDOV, D.N., PENTSOV, A.V., POPOV, YU.G.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1), 179-85

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--INDIUM ANTIMONIDE, ELECTRON RECOMBINATION, LOW TEMPERATURE EFFECT, TEMPERATURE DEPENDENCE, PHOTOCONDUCTIVITY, PHOTOMAGNETIC EFFECT, ELECTRON HOLE, ELECTRON TRAPPING, SEMICONDUCTOR CARRIER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1983/1307 STEP NO--UR/0449/70/004/001/0179/0185

CIRC ACCESSION NO--AP0054641

UNCLASSIFIED

2/2 033 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0054641

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TEMP. DEPENDENCES OF ELECTRON AND HOLE LIFETIMES IN P,TYPE INSB WERE INVESTIGATED AT SMALLER THAN 77DEGREESK BY MEASURING THE STATIONARY PHOTOCOND., THE PHOTOMAGNETIC EFFECT, AND THE PHOTOCOND. RELAXATION. WHEN THE HOLE CONCN. DECREASES, THE SHALLOW ACCEPTOR LEVEL, E SUBNU PLUS 8 TIMES 10 PRIME NEGATIVE3 EV, HAS A SUBSTANTIAL EFFECT ON RECOMBINATION. AT THE SAME TIME, THE HOLE LIFETIME DECREASES EXPONENTIALLY AND THE ELECTRON LIFETIME INCREASES BY NEARLY 1 ORDER. THE COEFF. OF ELECTRON TRAPPING IN THIS LEVEL IS 2 TIMES 10 PRIME NEGATIVE6 CM PRIME3-SEC. THE HEATING OF ELECTRONS BY LIGHT HAS AN ESSENTIAL EFFECT ON RECOMBINATION.

UNCLASSIFIED

USSR

GUSEYNOV, A. I., Academician, ABDURAGIMOV, M. A., Institute of Cybernetics, Dagestan State University imeni V. I. Lenin

"A Linear Problem of Conjugation"

Baku, Doklady Akademii Nauk AzerbSSR, Vol 28, No 3, 1972, pp 3-6

Abstract: Let L be a simple, closed Lyapunov contour in the plane of a complex variable which surrounds the coordinate origin; $Д^+$ and $Д^-$ are respectively the inner and outer regions into which L divides the plane. The symbols F^+ and F^- denote the space of functions which are analytical in $Д^+$ ($Д^-$) and continuous in $\overline{Д^+}$ ($\overline{Д^-}$) with norm

$$\| \Phi^+(z) \| = \max_{z \in \overline{Д^+}} |\Phi^+(z)| \qquad (\| \Phi^-(z) \| = \max_{z \in \overline{Д^-}} |\Phi^-(z)|).$$

We say that $u(t) \in H_1(\omega)$, $t \in L$, if $|u(t)| \leq k$, $|u(t_1) - u(t_2)| \leq k\omega(|t_1 - t_2|)$; $t_1, t_2 \in L$, $\omega(s) \in \Phi^*$. The authors find the functions $\Phi^+(z) \in F^+$ and $\Phi^-(z) \in F^-$ with respect to the boundary condition

$$|\Phi^+(t)|^n + F\left(t, \int \frac{(f|\tau, \Phi^+(\tau), \Phi^-(\tau)|}{\tau - t} d\tau\right) = Q(t)\Phi^-(t), \quad (*) :$$

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USSR

GUSEYNOV, A. I., ABDURAGIMOV, M. A., Doklady Akademii Nauk AzerbSSR, Vol 28, No 3, 1972, pp 3-6

where n is an integer of the value of 2 or more, $G(t)$ is a given function of the class $H_k(\omega)$ on L and does not vanish anywhere on L; $f(t,u,v)$ is a function defined for $t \in L$, $u = \varphi^+(z) \in F^+$, $v = \varphi^-(z) \in F^-$, satisfying the condition

$$|f(t_1, u_1, v_1) - f(t_2, u_2, v_2)| \leq A[\omega(|t_2 - t_1|) + |u_1 - u_2| + |v_1 - v_2|]$$

$$\omega(s) \in \Phi^*, \ 0 < s \leq l, \ A = \text{const} > 0,$$

$F(t,h)$ is a function defined for $t \in L$, $h = h(t) \in H(\omega)$, satisfying the condition

$$|F(t,h)| \leq B(1 + |h|^{n-\varepsilon}), \ 0 < \varepsilon \leq n - 1,$$

$$|F(t_1, h_1) - F(t_2, h_2)| \leq B[(1 + h^{n-\varepsilon})\omega(|t_1 - t_2|) + (1 + h^{n-1-\varepsilon})|h_1 - h_2|],$$

$$h = \max(|h_1|, |h_2|).$$

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USSR

UDC: 532.529

BOGDANOVICH, S.YA., GUSEYNOV, CH.S. and SHEVSKIY, A.I.

"Dispersed Composition of Aerosol in Natural Gas Flow Under Various Pressures"

Odessa, 11-ya Vses. Konf. po. Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972 (11-th All-Union Conference on Problems of Evaporation, Combustion and Gas Dynamics of Dispersion Systems, 1972), 1972, p 19 (from Referativnyy Zhurnal-Mekhanika, 1973, Abstract No 2B1223)

Translation: Results are described of the analysis of experimental data on pressure effects on the process of droplet formation in natural gas. The disp rsed composition of droplets at different pressures and flow velocities was measured by K.S. Shifrin optical method. It is shown that V.G. Levich relation between droplet size and flow velocity is true for natural gas, the coefficient of proportionality for this relation is determined and a single curve of droplet distribution in nondimensional form is plotted. Since the droplet size depends on the surface tension of the liquid at its boundary with gas, a test installation was prepared based on the method of maximum gas bubble pressure,

USSR

BOGDANOVICH, S. YA., et al., 11-ya Vses. Konf. po Vopr. Ispareniya, Goreniya i Gaz. Dinamiki Dispersn. Sistem, 1972, p 19

variation of surface tension of carbon dioxide condensate in wide range of pressures (1 to 100 atm) was investigated.

It is shown that pressure has a pronounced effect on the surface tension of the condensate (σ = 22.5 dyn/cm at 1 atm, σ = 13 dyn/cm at 50 atm), the resulting modul radius of the droplet varies from 150 to 39 mcm respectively.

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USSR UDC 621.311.088

GUSEYNOV, F. G., GUSEYNOV, A. M., SADYKHOV, R. R.

"Study of the Effect of the Number of Machines of an Initial Electric Power System on the Equivalence Error"

Sekhn. tereggi ugrunda, Za tekhn. progress (For Technical Progress), 1970, No 12, pp 18-20 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Yel93)

Translation: A specific example is used to demonstrate the nature of variation of the basic qualitative indexes of estimating the possibility of making electric systems equivalent with respect to degree of their complexity. It has been established that with complication of the initial system the equivalence error for investigating the electromechanical transient processes in the low oscillation mode decreases. This increases the possibility of simplifying complex multimachine electrical systems. There is 1 illustration, 5 tables and a 3-entry bibliography.[Azerbaydzhan Scientific Research Institute of Power Engineering, Baku]

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USSR

UDC [illegible]

GUSEYNOV, G. D., [illegible], F. M., KHALILOV, KH. YA., and [illegible], M. Z.
Physics Institute, Academy of Sciences AzerbSSR, Baku

"Pseudobinary System [illegible]"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 46, No 3, Mar 72, p [illegible]

Abstract: The TlSe-[illegible] system was studied; both components of that system melt without peritectic decomposition, undergoing no phase conversion. With the component ratio of 1:1 a semiconducting compound [illegible] is formed with a congruent melting point at [illegible]°C. It crystallizes in a tetragonal lattice with a = 7.[illegible], c = [illegible] Å; picnometric density = [illegible] and roentgenographic --6.22 g/cm³. This compound has no homogeneity zone. Solid solutions of the V type form on the basis of TlSe with up to 10 mole-% of [illegible]. The [illegible] crystals are more anisotropic than those of TlSe, while the [illegible] crystals are less anisotropic

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USSR UDC 621.317.799:537.311.33

PASHAYEV, A.M., TURKIN, I.N., BAKSHIYEV, I.I., GUSEYNOV, G.D.

"Devices For Investigation Of The Conductivity Of Heavily Doped Semiconductors"

Za tekhn. progress (For Technical Progress), 1970, No 6, pp 6-8 (from RZh--Elektronika i yeye primeneniye, No 11, November 1970, Abstract No 11B437)

Translation: A device is described for a noncontact method of measurement of electrical conductivity, which is based on measurement of the losses in an oscillatory circuit during introduction of a specimen. The device is intended for checking of semiconductor disks [shayba] and ingots under production conditions. The generator feeding the sensor [datchik] circuit with a HF current is assembled using one transistor. By virtue of the elimination of a d-c amplifier and regulators of the anode and filament power supply from the device, a simple portable unit is created. The voltage at the indicator is supplied from a rectifier diode loosely coupled with the circuit; the compensation voltage is supplied from a highly-stable standard cell. Checking of the resistivity is accomplished in the range of 10^{-2} -- 10 ohm.cm. Reproducibility of the results is better than 1% [sic]. The reliability and stability of operation of the device were checked by tests with prolonged uninterrupted operation (from 50 to 150 hours). 3 ref. I.R.

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1/2 007 UNCLASSIFIED PROCESSING DATE--02OCT70

TITLE--PREPARATION OF VINYL CHLORIDE BY THE DIRECT CHLORINATION OF ETHYLENE IN A FLUIDIZED CONTACT BED ON A PILOT PLANT APPARATUS -U-

AUTHOR-(05)-ALIYEV, V.S., MAMEDOV, M.A., GUSEYNOV, M.M., POPOVA, T.P., AGAYEV, M.T.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(3) 616-20

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

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ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. CH SUB2:CHCL WAS PREPD. IN MAX. 85.5PERCENT YIELD BASED ON C SUB2 H SUB4 (80.6PERCENT ON CL) WHEN CHLORINATION OF C SUB2 H SUB4 WAS CARRIED OUT AT 450DEGREES WITH A 4:1 C SUB2 H SUB4-CL RATIO IN A JACKETED 146-6 MM STAINLESS STEEL TUBE CONTG. A FLUIDIZED BED OF 0.14-0.30 MM QUARTZ SAND INTO WHICH CL WAS INTRODUCED AT A HEIGHT OF 250 MM ABOVE THE C SUB2 H SUB2 INPUT. THE CONDENSATE CONTAINED, BESIDES 78.03PERCENT CH SUB2: CHCL, 0.98PERCENT ETCL, 0.75PERCENT CH SUB2:CCL SUB2, 1.88PERCENT CIS AND 0.94PERCENT TRANS-CLCL:CHCL, 016PERCENT MECHCL SUB2, 13.35PERCENT CICH SUB2 CH SUB2 CL, 0.38PERCENT MECCL SUB3, 0.45PERCENT CL SUB2 CHCH SUB2 CL, 1.70PERCENT CL SUB2 C:CHCL, 1.36PERCENT C SUB2 CL SUB4, 0.01PERCENT C SUB2 H SUB2, AND 0.01PERCENT CH SUB2:CHCH:CH SUB2.

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USSR UDC: 621.315.592

BARANOVA, Ye. K., GUSEV, V. M., and STREL'TSOV, I. N.

"Investigating Radiation Defects in Silicon Irradiated by Lithium Ions by the Infrared Absorption Method"

Leningrad, Fizika i tekhnika poluprovodnikov, No 12, 1972, pp 2399-2400

Abstract: This brief communication presents the results of investigations by the infrared absorption method into radiation defects formed in p-silicon monocrystals by the introduction of lithium ions with an energy of 80 kev in dosage intervals varying from 6.10^{13} to 3.10^{16} ions/cm^2. The introduction of the ions was made on ILU-3 equipment by a method described in an earlier paper (V. M. Gusev, et al, FTP, 4, 19, 1969). Transmission spectra of the irradiated specimens in the near infrared region of 0.7 to 2.5 microns were obtained with the double-beam IKS-14 spectrophotometer. A sample spectrum is shown. A curve is plotted showing the change in the spectra caused by the annealing procedures. The authors express their thanks to M. I. Gusev for his advice.

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"Study of the Psychotropic Action of Aminoderivatives of Dibutyneoxyethane and Propynoxybutyl Xanthogenate"

Baku, Azerbaydzhanskiy Meditsinskiy Zhurnal, Russian, No 7, 1972, pp 69-72

Acetylene derivatives have long attracted the attention of investigators because of their potential pharmacological properties [1--4].

Earlier [5], after having studied the pharmacological properties of dialkylaminoacetates of halogen-containing acetylenic alcohols, we demonstrated that several of them can be used successfully in the clinic instead of the well-known sedatives methylpentynol and meprobamate.

As an extension of previous investigations, we set as our purpose the investigation of the pharmacological properties of several nitrogen-containing derivatives of dibutyneoxyethane and propargyl butylxanthogenate. The chemical structural similarity of the latter to the well-known alkyne tranquilizers

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(methylpentenyl carbamate, placidyl, merinax) allowed us to hope for a positive result.

The experiment was conducted on mice of both sexes, weighing 18-20 g using tests which allowed us to make a preliminary evaluation of the psychotropic activity of the substances under study [6].

The hypno-sedative effect was determined by potentiation of hexenal sleep and the net-crawling test:

a) hexenal sleep potentiation: determinations were made of the number of mice put to sleep. Mice were given one of the compounds under study forty minutes before the injection of hexenal; the obtained results were compared with indices of control mice to which hexenal alone was administered;

b) the net-crawling test was utilized for the purpose of studying orientation reaction; the mice placed in a special chamber were lifted for five minutes in a wire cage held at a 60° angle to the upper darkened section of the chamber: the absence of a net-crawling reaction under the influence of the substance under study was considered to be an indication of orientation reaction suppression.

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Comparative Activity of Several Derivatives of Dibutyneoxyethane

$$CH_3CH \begin{matrix} OCH_2\text{-}C \equiv C\text{-}CH_2\text{-}R \\ OCH_2\text{-}C \equiv C\text{-}CH_2\text{-}R \end{matrix}$$

and propynoxybutyl xanthogenate (IV)

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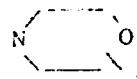
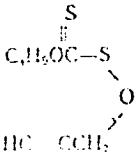
№	Формула (1) R	Потенцирование гексеналового сна (2)			Нарушение ориентировочных реакций (3)		
		Доза, мг/кг (5)	% эф. (6)	E_{50}, мг/кг (7)	Доза, мг/кг (5)	% эф. (6)	E_{50}, мг/кг (7)
I	$N(C_2H_5)_2$	50 80 100	16,6 66,6 66,6	78 (62,4÷97,5)	100 200 400	16,6 16,6 40	400 мг/кг —40% (11)
II	$N(C_4H_9)_2$	10 25 50 100	33,3 50 83,3 83,3	21,0 (9,5÷46,2)	100 200	0 50	200 мг/кг —50% (12)
III		25 50 100	40 50 83,3	35,0 (30,4÷40,3)	100 200	0 30	200 мг/кг —30% (15)
IV		50 100 150 200	16,6 50,0 66,6 100	105 (73÷157,5)	100 150 200	0 16,5 66,6	150 (111÷225)

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Нарушение координации движений (4)			(8) Антагонизм с коразолом	(9) Устранение максимального электросуд. припадка	Токсичность (10)
Доза, мг/кг (5)	% эф. (6)	$Ед_{50}$, мг/кг (7)			
100 200 400	16,6 50 66,6	240 (232+247,6)	—	400 мг/кг —40% (11)	400 мг/кг —80%
200 400	0 30	400 мг/кг —30% (13)	400 мг/кг — нет эффекта (14)	400 мг/кг — нет эффекта (14)	400 мг/кг
200 400	0 16	400 мг/кг —16% (16)	400 мг/кг — нет эффекта	200 мг/кг —10% (17)	400 мг/кг
100 150 200	0 16,6 83,3	185 (92,5+370)	—	—	—

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Key:

1. Formula
2. Hexenal sleep potentiation
3. Orientation reaction disruption
4. Movement coordination disturbance
5. Dose, mg/kg
6. % ester
7. 50% effective dose, mg/kg
8. Antagonism to corazole
9. Elimination of maximum electrode tremor
10. Toxicity
11. 400 mg/kg-40%
12. 200 mg/kg-50%
13. 400 mg/kg-30%
14. 400 mg/kg-no effect
15. 200 mg/kg-30%
16. 400 mg/kg-16%
17. 200 mg/kg-10%

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The tranquilizing effect was determined by the corazole antagonism test, described by Swinyard and Brown [7], and the anti-tremor effect--by the maximum electric shock method, described by Tolman and associates [8].

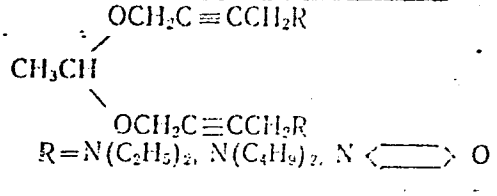
The addition, the daily toxicity was determined by the constant temperature of the environment.

A statistical treatment of the results with a computation of the 50% effective doses (ED_{50}) and their reliable intervals (at P=0.05) was conducted by the Litchfield-Wilcoxon method [9].

The substances being tested were administered to mice intrabdominally 45 minutes before the start of the experiment.

The table cites the comparative activity of the compounds in all tests in relation to dose.

Derivatives of dibutynoxyethane



$R = N(C_2H_5)_2,\ N(C_4H_9)_2,\ N\langle\rangle O$

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The spectrum of the pharmacological activity of dibutyneoxyethane derivatives is characterized by a combination of both hypno-sedative and myorelaxant properties with mild antispasmodic effects. In comparison to monoacetylenic derivatives, the presence of two identical oxabutynyl chains in the structure of the compounds under study enhances somewhat different characteristics in pharmacological activity changes in relation to nitrogen-containing radicals in the quaternary position (R). Thus, the diethylamino derivative of dibutyneoxyethane (1), in contrast to compounds with an analogous radical in the series with one such acetylene chain, exhibits the lowest activity in hypno-sedative effect and the greatest toxicity in comparison to dibutylamino (II) and morpholine (III) derivatives.

The most active compound in the dibutyneoxyethane series is the derivative with the dibutylamino radical (II) after which in order of decreased activity (according to tests for hexenal sleep potentiation and orientation reaction disruption) are the compounds with morpholine (III) and diethylamino (I) radicals.

Propargyl butyl xanthogenate (IV) exhibits moderate sedative and myorelaxant effects. Hexenal sleep potentiation, orientation reaction and movement coordination disruption are noted approximately at the identical administered

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